## REMARKS

Claims 1-26 were examined and reported in the Office Action. Claims 1-26 are rejected. Claims 1, 10, 19-20 and 23-24 are amended. Claims 1-26 remain.

Applicant requests reconsideration of the application in view of the following remarks.

### I.    Specification Objections

Applicant notes that it is asserted in the Office Action that the specification is objected for not including a section entitled "Brief Summary of the Invention." Applicant respectfully disagrees.

Applicant notes that 37 CFR §1.77(b) asserts that the specification "should include" a "Brief Summary of the Invention."

Applicant notes that 37 CFR §1.77(c) asserts that "[t]he text of the specification sections defined in paragraphs (b)(1) through (b)(11) of this section, **if applicable,** should be preceded by a section heading in uppercase and without underlining." (Emphasis added).

Applicant notes that 37 CFR §1.73 asserts that "Such summary should, **when set forth,** be commensurate with the invention as claimed and any object recited should be that of the invention as claimed. (Emphasis added).

Applicant also notes that MPEP section 608.01(d) asserts that "[a] brief summary of the invention indicating its nature and substance, which may include a statement of the object of the invention, **should** precede the detailed description. Such summary, should, **when set forth,** be commensurate with the invention as claimed and any object recited should be that of the invention as claimed." (Emphasis added).

The plain English meaning of the terms "when set forth" indicate that the summary need not be included in an application. Since 37 CFR §1.77(c) uses the terms

"if applicable," 37 CFR §1.73 and MPEP section 608.01(d) asserts "when set forth," it is clear that inclusion of a Brief Summary of the Invention section is not mandatory. Since the MPEP follows the language of the CFR, and includes the terms "when set forth," there is no indication, whatsoever, that a Brief Summary of the Invention section must mandatorily be included in an application for patent.

Therefore, according to the CFR and MPEP, Applicant elects not to include a "Brief Summary of the Invention." Applicant also notes that according to 37 CFR §1.77(c), the sections indicated in 37 CFR §1.77(b)(1)-(b)(11) that are not applicable, need not be included in the application for patent.

Accordingly, withdrawal of the specification objection for not including a "Brief Summary of the Invention" is respectfully requested.

## II.     35 U.S.C. § 112, second paragraph

It is asserted in the Office Action that claims 19-26 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Applicant has amended claims 19-20 and 23-24 to overcome the 35 U.S.C. § 112, second paragraph rejections.

Accordingly, withdrawal of the 35 U.S.C. § 112 rejections for claims 19-26 are respectfully requested.

## III.     35 U.S.C. § 103(a)

A.     It is asserted in the Office Action that Claims 1, 6-10, and 15-26 are rejected under 35 U.S.C. § 103(a), as being unpatentable over U. S. Patent No. 5,467,473 issued to Kahle ("Kahle") in view of U.S. Patent No. 5,987,595 issued to Yoaz ("Yoaz"). Applicant respectfully disagrees.

According to MPEP §2142 "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary

skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). Further, according to MPEP §2143.03, "[t]o establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. (In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." "*All words in a claim must be considered* in judging the patentability of that claim against the prior art." (In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970), emphasis added.)

Applicant's amended claim 1 contains the limitations of "a predictor having a collision history table (CHT), said predictor for predicting silent store instructions; a processing section coupled to the predictor, the processing section including an extended load buffer coupled to the predictor; a marking processing section; a comparing processing section; and a recovery processing section, wherein unexecuted load instructions are advanced over silent store instructions."

Applicant's amended claim 10 contains the limitations of "a processor having internal memory, a bus coupled to the processor; a memory coupled to a memory controller and the processor; wherein the processor includes: a predictor having a collision history table (CHT), said predictor for predicting silent store instructions; an extended load buffer coupled to the predictor; a marking process; a comparing process; and a recovery process, wherein unexecuted load instructions are advanced over store instructions."

Applicant's amended claim 19 contains the limitations of "fetching an instruction and determining if an instruction is one of a store and a load; performing a silent store prediction if the instruction is a store; executing the store instruction; comparing an address and data of the store with load instructions in an extended load buffer; setting marking bits in the extended load buffer if a match is found in the comparing; updating

a memory with store instruction if the store instruction can be retired; and bypassing a predicted silent store instruction and executing the load instruction if the instruction is a load."

Applicant's amended claim 23 contains the limitations of "[a] program storage device readable by a machine comprising instructions that cause the machine to: fetch an operation and determining if the operation is one of a store and a load; perform a silent store prediction if the operation is a store; execute the store operation; compare an address and data of the store operation with load operations in an extended load buffer; set marking bits in the extended load buffer if a match is found in the compare instruction; update a memory with a store operation if the store operation can be retired; and bypass a predicted silent store operation and execute the load operation if the operation is a load."

Applicant points out that there is a difference between a typical "store" and a "silent store." A person of ordinary skill in the art would know that a load instruction typically transfers data from memory to a general register, a floating-point register, or a pair of floating-point registers, and store instructions typically transfer data from a general or floating-point register to memory. A silent store, however, is not a typical store instruction. A person of ordinary skill in the art would know that "silent store" is a store instruction that does not change the value already present at the target address. In other words, the value being written by the store instruction matches the exact value already stored at that same memory location.

Kahle discloses a comparison technique for reordering load and store instructions that were executed out of order. Nowhere in Kahle, however, is a predictor for predicting silent stores disclosed, taught or suggested.

Applicant notes that Yoaz is the same inventor of the presently claimed Application. Yoaz discloses a load predictor for predicting where a load instruction will collide, and determining how far the load instruction can be advanced without

leading to a collision. Yoaz, however, does not teach, disclose or suggest <u>a predictor for predicting silent stores</u>.

Neither <u>Kahle</u>, <u>Yoaz</u>, nor the combination of the two, teach, disclose or suggest the limitations contained in Applicant's amended claims 1, 10, 19 and 23, as listed above. Since neither <u>Kahle</u>, <u>Yoaz</u>, nor the combination of the two, teach, disclose or suggest all the limitations of Applicant's amended claims 1, 10, 19 and 23, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claims 1, 10, 19 and 23 are not obvious over <u>Kahle</u> in view of <u>Yoaz</u> since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claims that directly or indirectly depend from amended claims 1, 10, 19 and 23, namely claims 6-9, 15-18, 20-22, and24-26, respectively, would also not be obvious over <u>Kahle</u> in view of <u>Yoaz</u> for the same reason.

It is asserted on page 12 of the Office Action, paragraph 28, item c, that *On the value locality of store instructions*, Lepak, K.M, Lipasti, M.H., Computer Architecture, 2000, Proceedings of the International Symposium on June 10-14, 2000 ("<u>Lipasti</u>") discloses silent store prediction. Applicant notes that paragraph 17 of the Office Action does not list <u>Lipasti</u> in the rejection set forth. Applicant, however, asserts the following regarding <u>Lipasti</u>. <u>Lipasti</u>, discloses to use silent stores for reducing memory traffic and eliminate memory writes. The ideas disclosed by <u>Lipasti</u>, however, do not need prediction of silent stores. It is asserted in the Office Action that the tables on page 184 of <u>Lipasti</u> represent predictor tables. Applicant notes that the tables represent "stride predictor" tables. (<u>Lipasti</u>, page 183, column 2, third paragraph). Moreover, <u>Lipasti</u> does not teach, disclose or suggest a predictor for predicting silent stores.

Neither <u>Kahle</u>, <u>Yoaz</u>, <u>Lipasti</u>, nor the combination of the three, teach, disclose or suggest the limitations contained in Applicant's amended claims 1, 10, 19 and 23, as listed above. Since neither <u>Kahle</u>, <u>Yoaz</u>, <u>Lipasti</u>, nor the combination of the three, teach, disclose or suggest all the limitations of Applicant's amended claims 1, 10, 19 and 23, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claims 1, 10, 19 and 23 are not obvious over

Kahle in view of Yoaz and further view of Lipasti since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claims that directly or indirectly depend from amended claims 1, 10, 19 and 23, namely claims 6-9, 15-18, 20-22, and24-26, respectively, would also not be obvious over Kahle in view of Yoaz and further in view of Lipasti for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejections for Claims 1, 6-10, and 15-26 are respectfully requested.

B.     It is asserted in the Office Action that Claims 2-5 and 11-14 are rejected under 35 U.S.C. § 103(a), as being unpatentable over ("Kahle") in view of ("Yoaz") and further in view of Lipasti. Applicant respectfully disagrees.

Applicant's claims 2-5 depend on amended claim 1. Applicant's claims 11-14 depend on amended claim 10. Applicant has discussed amended claims 1 and 10 above in section III(A).

Further, it is asserted in the Office Action on page 19, paragraph 37, c, that the tables on page 184 of Lipasti represent predictor tables. Applicant notes that the tables represent "stride predictor" tables, not "silent store prediction" tables. (Lipasti, page 183, column 2, third paragraph). Moreover, Lipasti does not teach, disclose or suggest a predictor for predicting silent stores.

Neither Kahle, Yoaz, Lipasti, nor the combination of the three, teach, disclose or suggest the limitations contained in Applicant's amended claims 1 and 10, as listed above. Since neither Kahle, Yoaz, Lipasti, nor the combination of the three, teach, disclose or suggest all the limitations of Applicant's amended claims 1 and 10, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claims 1 and 10 are not obvious over Kahle in view of Yoaz and further view of Lipasti since a *prima facie* case of obviousness has not been met under MPEP §2142. Additionally, the claims that directly or indirectly depend from amended claims 2-5, and11-14, respectively, would also not be obvious over Kahle in view of Yoaz and further in view of Lipasti for the same reason.

Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejections for Claims 2-5 and 11-14 are respectfully requested.

## CONCLUSION

In view of the foregoing, it is submitted that claims 1-26 patentably define the subject invention over the cited references of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR, & ZAFMAN LLP
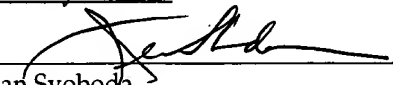
Dated: February 11, 2004          By: _____

Steven Laut, Reg. No. 47,736

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(310) 207-3800

**CERTIFICATE OF FACSIMILE TRANSMISSION**
I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office, Mail Stop Fee Amendment, Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450, on February 11, 2004.

Jean Svoboda